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## A magazine strip for screws and a unit for driving in screws

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### Abstract

A relatively rigid rod or magazine strip 1 has longitudinally spaced through holes 2 for screws 3 and is of a material, e.g. foamed polystyrene, which is compressible and/or abradable and/or can be broken off and has a thickness D of several turns of threads. A driving-in unit for screws comprises a drivable screwing tool 101, a telescopic spring-loaded tool feed guide 103 and a screw magazine strip delivery device 104, the longitudinal central axis of which is aligned with and extends transversely to the axis of the screwing tool 101. The feed guide 103 and screwing tool 101 are on spaced parallel axes. The drive unit 102 of the screwing tool 101 and a part 109 of the feed guide 103 are connected by a common first cross member 108. A second cross member 110, spaced from and parallel to the first cross member 108 is securely connected to the other part 112 of the feed guide 103 and has a through bore 111 for the screwing tool 101. The delivery device 104 with a delivery channel for the magazine strip 106, with screw stop surfaces and dogs 131, 132 and with a spring feed for the magazine strip 106, as well an abutment surface 144 for positioning the driving-in unit during use, are mounted or formed on this second cross member 110.



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## Description

### SPECIFICATION

A magazine for screws and a unit for driving-in screws

The invention relates to a magazine strip for screws with through holes spaced apart successively in the longitudinal direction of the magazine strip for the insertion of screws, and also to a driving-in unit for the screws delivered in the magazine strip, comprising a screwing tool which can be driven, a spring-loaded feed guide and also a delivery device for the screws, the longitudinal central plane of which is aligned with the axis of the screwing tool.

A plurality of design variants for magazine belts or strips are known, which are able to accommodate a plurality of screws and which can be rolled up. However, for operational reasons such long magazine strips can only be used where the driving-in unit can be supported on the ground, since the plurality of screws inserted therein represent a considerably weight. Therefore, such magazine strips only serve for holding screws and cannot be used for accurate positional location in the driving-in unit. The axial alignment of the screws is not accurate in such magazine strips.

When screwing in or driving in self-tapping screws, exact alignment of the screw to the axis of the screwing tool is necessary and, moreover, in the case of manually operated tools, which are used also for wall and ceiling installation, it is necessary to reduce the overall weight as much as possible.

The subject of the invention is a magazine strip, with which simple loading with screws is possible, which can be simply conveyed and introduced into a driving-in unit and in which, moreover, accurate retention of the screws in the driving-in unit is ensured.

In accordance with the invention the magazine strip, as a bending-resistant section member, is made from material which is compressible and/or abradable and can be broken off, and in axial direction of the through holes is of a thickness extending over several turns of thread.

Since the magazine strip is produced from relatively rigid material, simple loading of the magazine strip with screws is possible, this loading being effected, for example, by pressing the screws into the through holes. The magazine strip is resistant to bending and can thus be rapidly loaded into a driving-in unit. Insertion into a corresponding delivery channel in the driving-in unit and also guidance therein can be accomplished particularly easily.

Since the thickness of the magazine strip is so chosen that the inserted screws are retained by way of several turns of the thread, secure and accurate alignment of the screws inside the magazine strip and thus also in the driving-in unit is ensured, in which case an inserted screw is afforded guidance until it has been effectively screwed home.

Since the material of the magazine strip is compressible and/or abradable, in simple manner the possibility is offered for the screw, optionally provided with a head, to be screwed home through the magazine strip, without the material of the strip offering any particular obstruction.

A particular advantage is also achieved if the magazine strip is made from material which can be broken off so that, for example, the empty portion of the magazine strip, which protrudes from the driving-in unit, can readily be removed by being broken off. This is particularly important when work has to be carried out, for example, in a corner of a room or in other places with difficult access.

By designing the magazine strip as a bending-resistant section member, the magazine strip is of course only of corresponding length, so that the weight of the inserted screws in relation to the total weight, including the driving-in unit, is insignificant. Furthermore, because of the possibility of rapid reloading with such a bending-resistant section member, in practice no delays occur in operating time.

Various embodiments of driving-in units for screws are also known. However, they are of relatively great overall length and are of corresponding weight, thereby making it difficult to work in particular on a wall or ceiling. Furthermore, a complicated mechanical construction results therefrom, especially as a spring-loaded feed guide and also the screwing tools are aligned coaxially with one



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## Claims

### CLAIMS

1. A magazine strip for screws to be accurately located during delivery in a driving-in unit, with through holes spaced apart successively in the longitudinal direction of the magazine strip for the insertion of the screws, wherein the magazine strip, as a bending-resistant section member, is made from material which is compressible and/or abradable and/or can be broken off, and in axial direction of the through holes is of a thickness extending over several turns of thread.
2. A magazine strip according to Claim 1, wherein it consists of expanded polystyrene foam.
3. A magazine strip according to Claim 1 or 2, wherein the through holes have a free passage cross-section approximately corresponding to the core diameter of the screws to be inserted.
4. A magazine strip according to one of Claims 1 to 3, wherein, starting from the free passage cross-section of the through holes, radially outwardly directed grooves, recesses or the like are provided.
5. A magazine strip according to one of Claims 1 to 3, wherein arcuately extending slot portions are provided coaxially to the through holes for accommodating screws, which slot portions pass right through the thickness of the magazine strip.
6. A magazine strip according to one of Claims 1 to 3, wherein peripherally closed grooves extending coaxially to the through hole are provided, the depth of which grooves extending coaxially to the through hole are provided, the depth of which grooves corresponds only to part of the thickness of the magazine strip.
7. A magazine strip according to Claim 6, wherein the grooves are of wedge-shaped cross-section.
8. A magazine strip according to one of Claims 1 to 7, wherein between the through holes spaced apart successively there are provided transverse slots which extend transversely to the longitudinal extension of the magazine strip, which extend over at least a part of the width thereof.
9. A magazine strip according to one of Claims 1 to 8, wherein ribs, grooves, openings or projections are formed in or on at least one of the lateral boundary surfaces, the upper side and/or underside of the magazine strip.
10. A magazine strip according to Claim 1 or 2, wherein it is of rectangular cross-section, in which case the ratio of thickness to width is approximately 1:1.5, or it is of circular cross-section.
11. A magazine strip according to Claim 1 or 2, wherein the upper and/or lower boundary surface is formed as a longitudinally extending concave depression.
12. A magazine strip for screws substantially as herein described with reference to and as shown in the accompanying drawings.
13. A driving-in unit for use with screws delivered in a magazine strip as claimed in Claims 1 to 12, comprising a drivable screwing tool, a springloaded feed guide and a delivery device for the screws, the longitudinal central axis of which is aligned with the axis of the screwing tool, wherein the parts of the feed guide which can slide one inside the other are disposed in per se known manner axially parallel to and at a distance from the screwing tool, and the drive unit of the screwing tool and a part of the feed guide are mounted or formed on a common first, freely projecting cross member, a second freely projecting cross member, provided at a distance from this first cross member and aligned parallel thereto, is securely connected to the other part of the feed guide and has a through bore for the screwing tool, and the delivery device with a delivery channel for the screws held in a magazine strip, with stop surfaces and dogs and with a feed for the magazine strip, as well as an abutment surface for positioning the driving-in unit during use, are mounted or formed on this second cross member.

Fig. 1

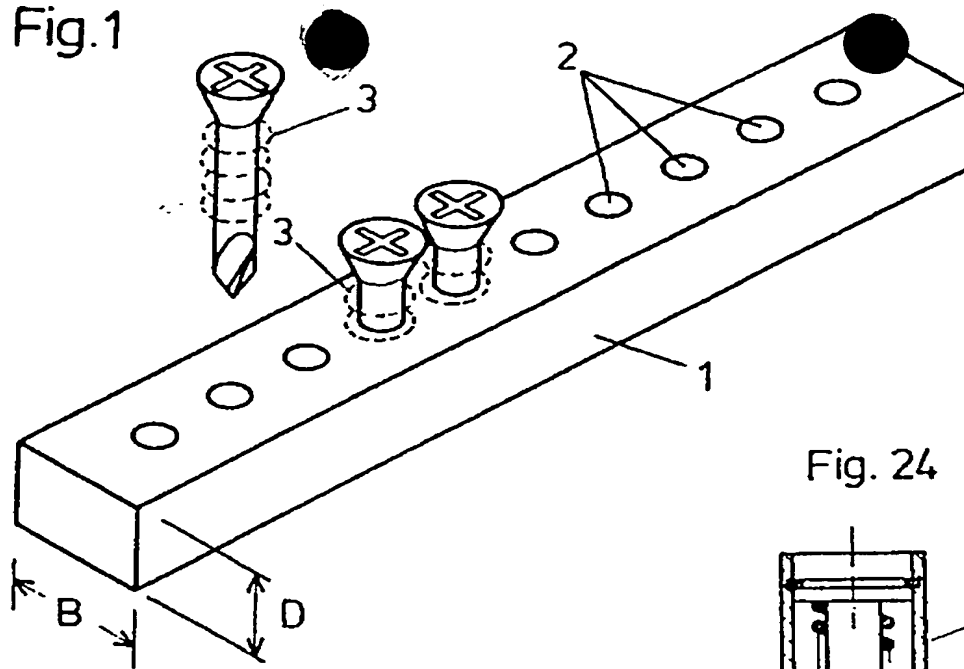


Fig. 24

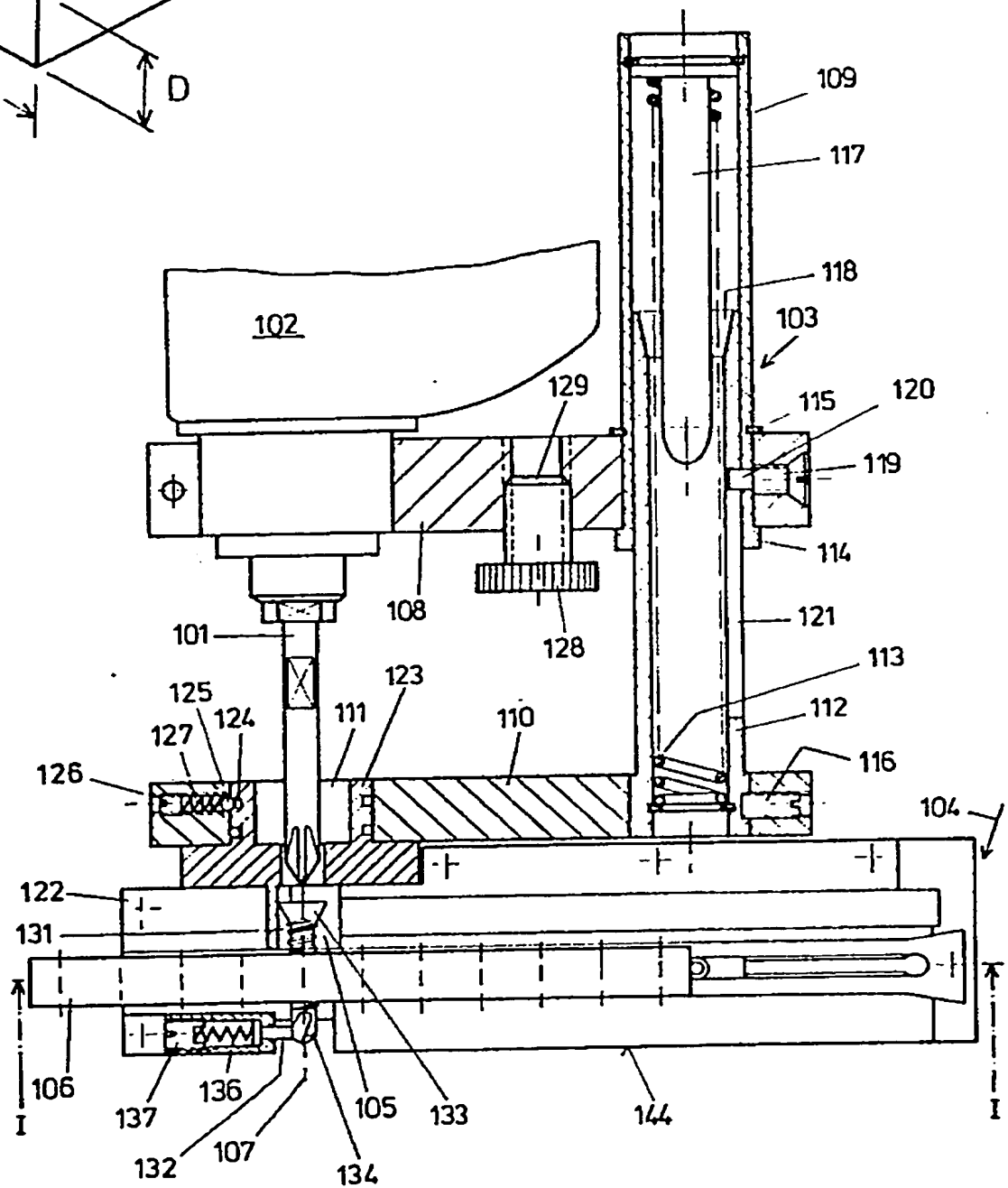


Fig.7

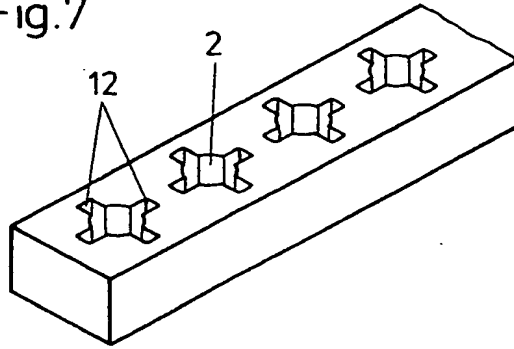


Fig.9

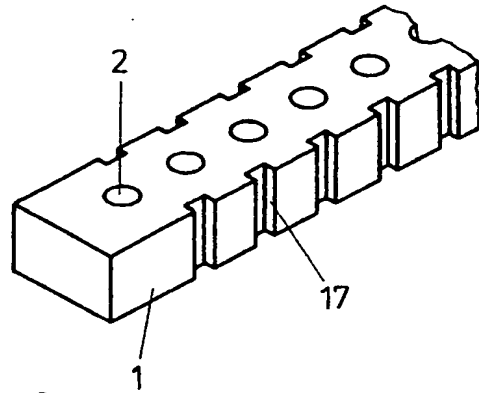


Fig.8

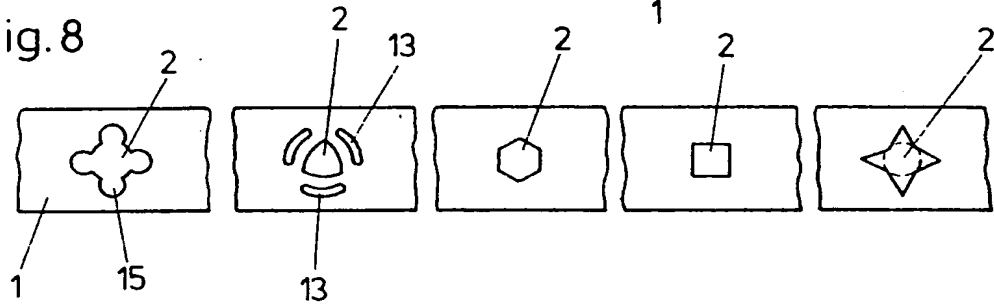


Fig.10

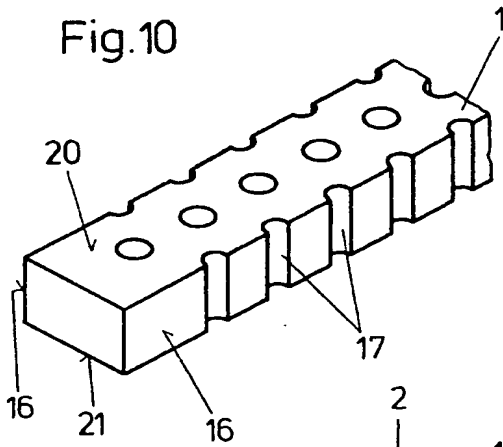


Fig.11

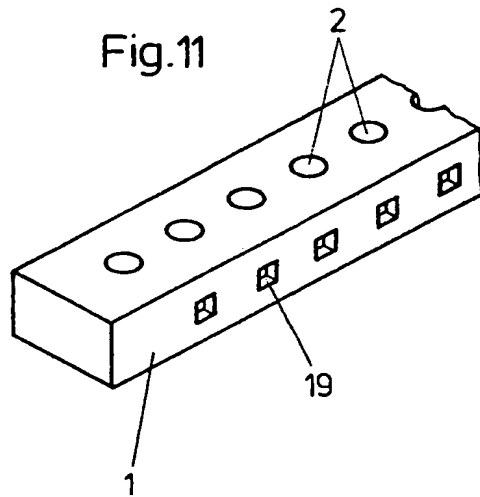


Fig.12

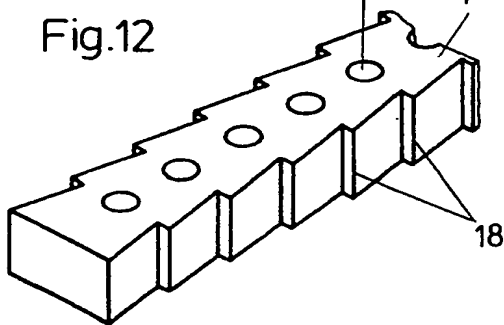


Fig.13

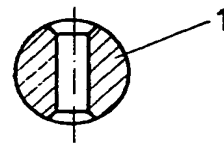


Fig. 14

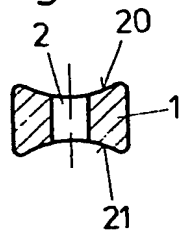


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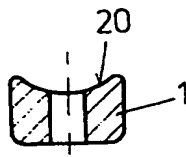


Fig. 16

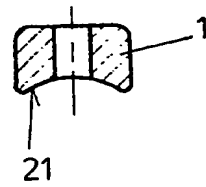


Fig. 17

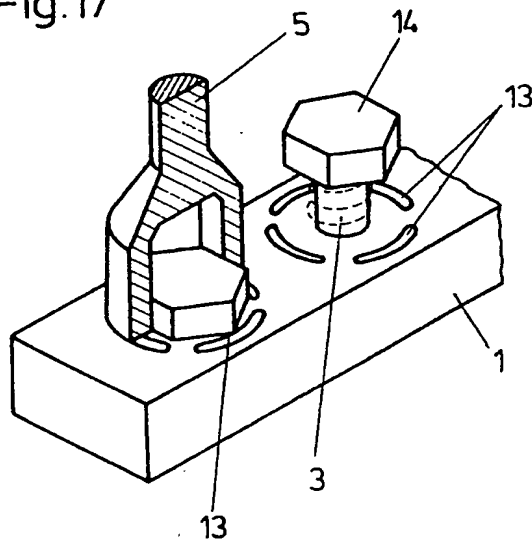


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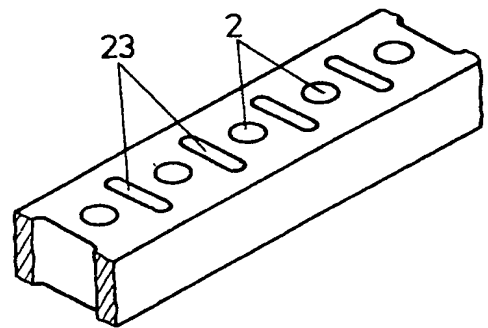


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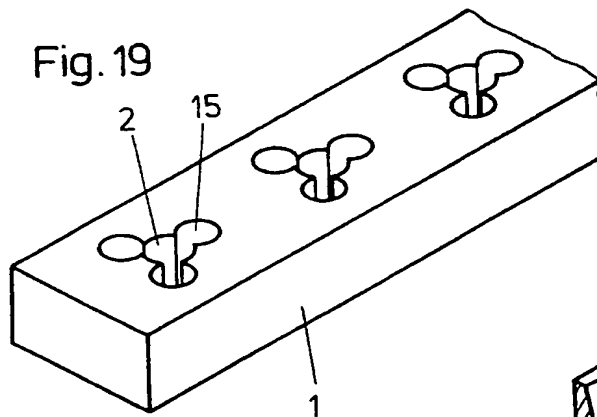


Fig. 20

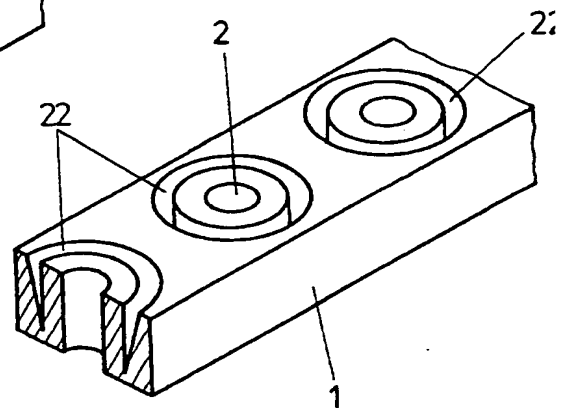


Fig. 21

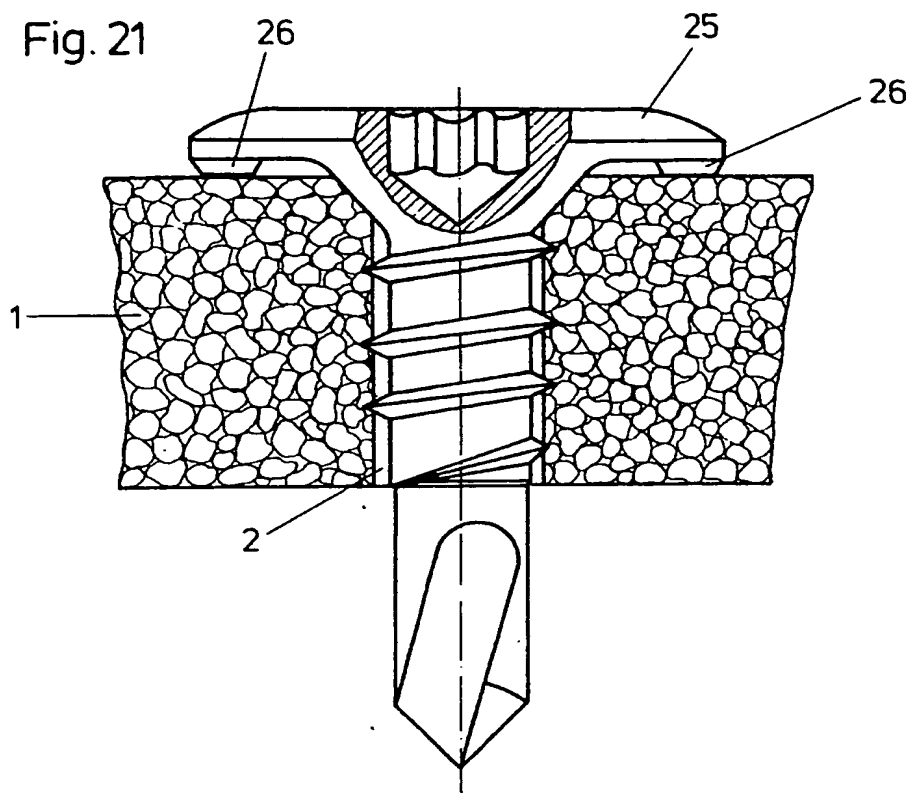


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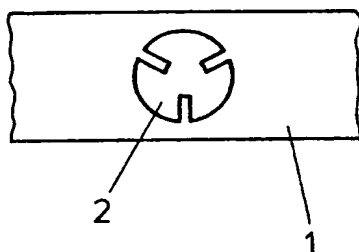
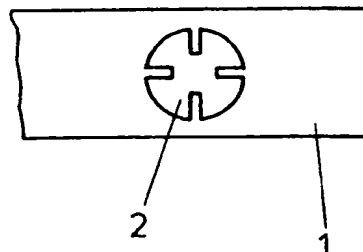


Fig. 23





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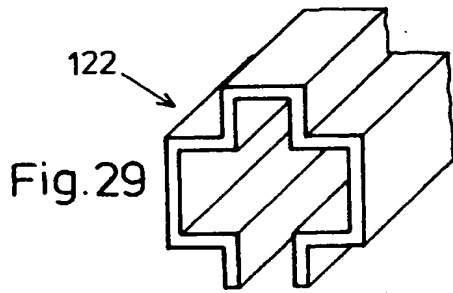
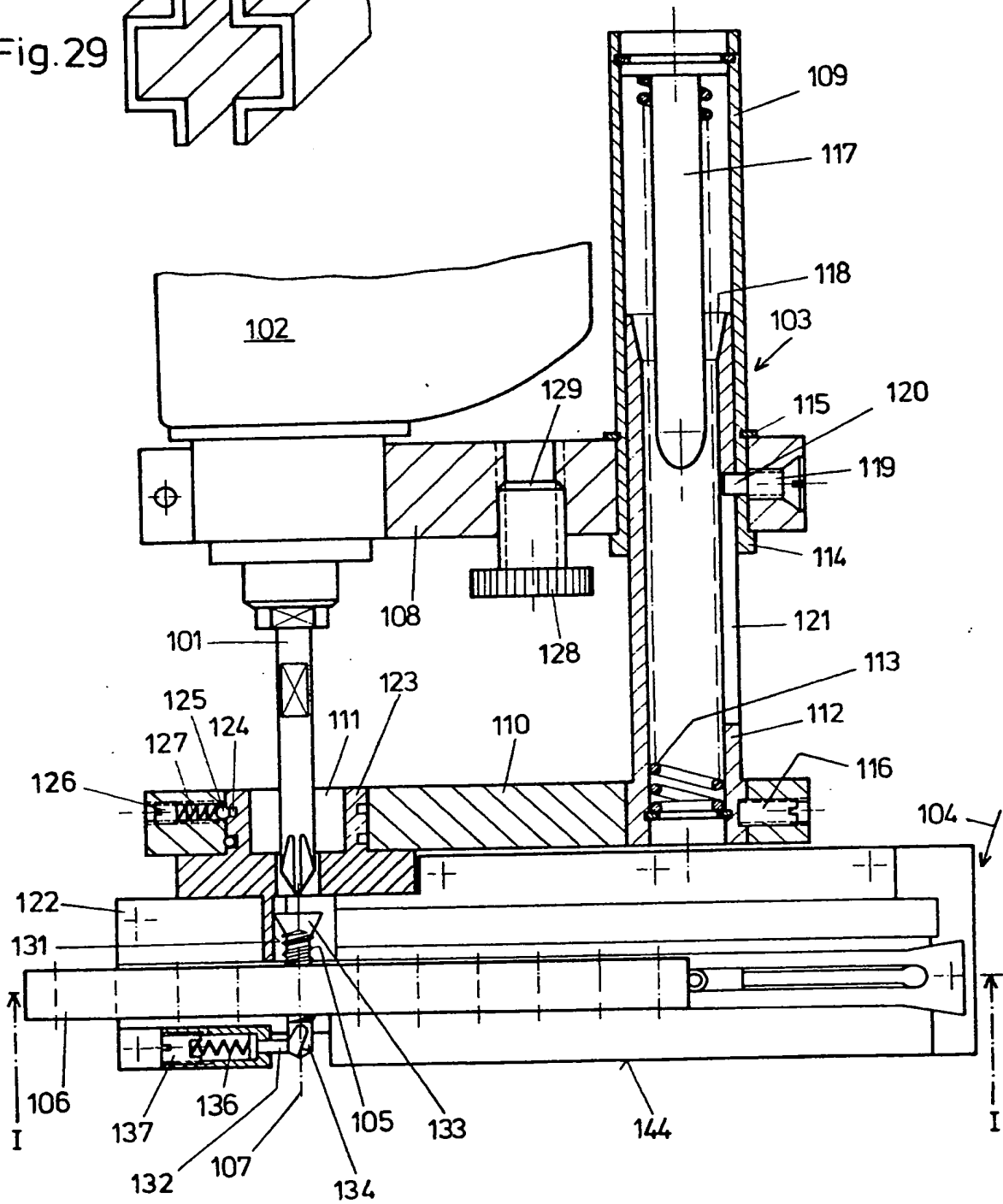


Fig. 24



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Fig. 27

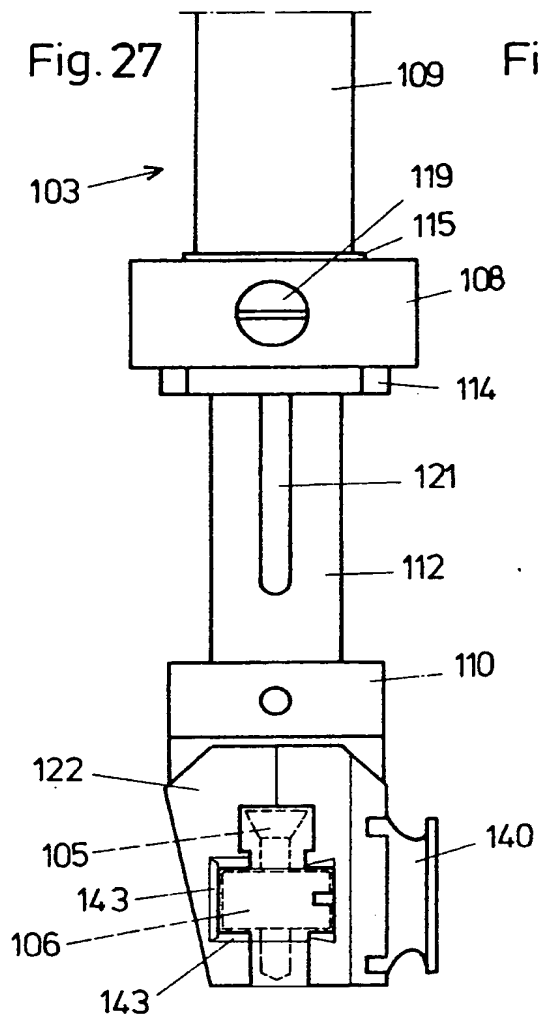


Fig. 28

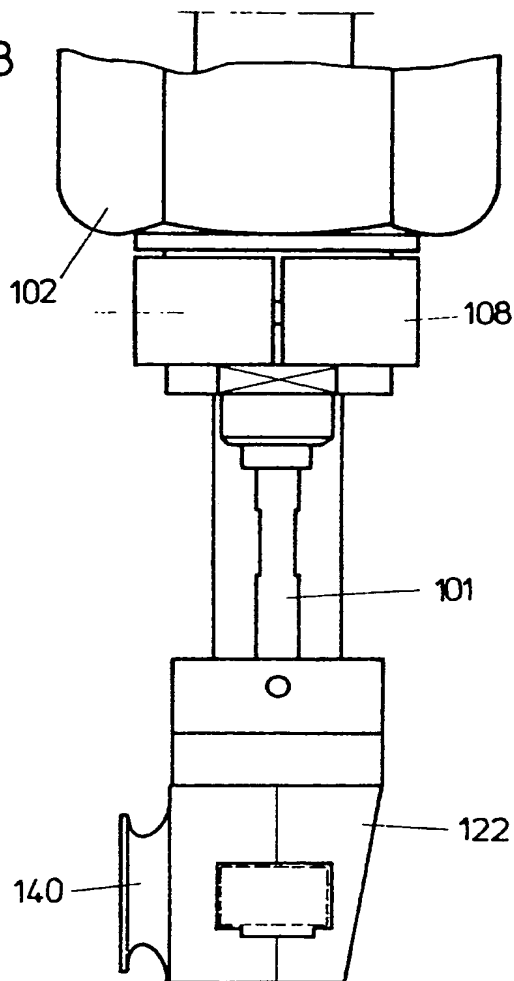


Fig. 25

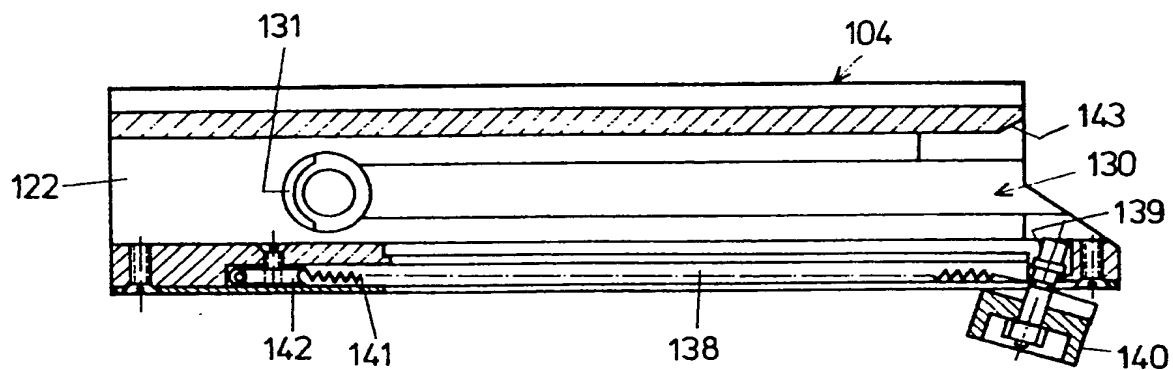


Fig. 26

